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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,760	03/03/2004	John David Baniecki	042161	5090

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EXAMINER

HO, TU TU V

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,760

Applicant(s)

BANIECKI ET AL.

Examiner

Tu-Tu Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Oath/Declaration

1. The oath/declaration filed on 03/03/2004 is acceptable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-30** are rejected under 35 U.S.C. §103(a) as being unpatentable over Douglas et al. U.S. Patent 5,520,992 (the '992 reference).

Douglas discloses in Figs. 1-3 and respective portions of the specification a thin film capacitive element and an inherent process for the production thereof substantially as claimed.

Referring to **claims 1, 14-15, and 23**, Douglas discloses in column 1, lines 15-50, a thin film capacitive element and an inherent process for the production thereof comprising a semiconductor silicon substrate (26, in reference also to **claims 3-5**) having applied thereon a capacitor structure constituted from a lower electrode (28/36), a dielectric layer (30) formed on the lower electrode and an upper electrode 36/28) formed on the dielectric layer, in which said dielectric layer comprises a high dielectric constant material (HDCM), known in the art, comprising a titanate such as barium (Ba) strontium (Sr) titanate (TiO) doped with yttrium (Y)

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(column 1, lines 22-28). In other words, the '992 reference discloses that the dielectric layer comprises an HDCM represented by $Ba_xSr_yY_zTi_aO_b$. The difference between the reference's material and the claimed material are the various variables for the respective Ba, Sr, Y, Ti, and O components. However, selecting a specific combination through experimentation as claimed for the various combinations of the variables for the component materials - that eventually form a high dielectric constant material - is within the skill of a person of ordinary skill in the art, and therefore such selecting would be obvious and would not contribute to patentability.

Referring to **claims 2 and 24**, although the reference fails to specify a thickness of 1 to 300 nm as claimed for the dielectric layer, selecting a thickness for a specific application is within the ability of a person of ordinary skill in the art, therefore would have been obvious. See, for example, Thakur et al., U.S. Patent 6,251,720, column 10, first paragraph, for comparable various thicknesses for the dielectric layer.

Referring to **claims 6-7, 19-20, 25, and 27**, although the reference fails to disclose a passivation insulating layer applied over the device comprising the substrate and the capacitor that includes the electrodes, such a passivation insulating layer is normally applied over the device to protect the device from the environment and as a means to form a contact for the device so as the device can function, as is known in the art, and as disclosed by, for example, EP 0 961 311 as layer 14, cited by Applicant.

Referring to **claims 8-13, 16-18 and 26**, the reference further discloses in column 3, lines 15-45, that the multilayered lower and upper electrodes 28/36 and 36/28 comprises a titanium nitride, titanium oxide, ruthenium oxide, or ruthenium nitride, thus meeting the limitations of the Markush group of materials of the claims. Although the reference does not

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explicitly disclose that the conductive metal nitride or conductive metal oxide layer 28 or the conductive metal nitride or conductive metal oxide layer 36 is an adhesion layer, the conductive metal nitride or conductive metal oxide layer 28 or the conductive metal nitride or conductive metal oxide layer 36 is an adhesion layer as is known and as disclosed by, for example, Kohara et al. U.S. Patent 6,21,2057, disclosing that metal oxide adhesive film 2 is an adhesion layer, column 5, lines 30-50.

Referring to **claims 21 and 22**, although the reference fails to disclose a specific application connection of series or parallel connection for the capacitor structure, series or parallel connection for the capacitor structure for various specific uses is within the ability of a person of ordinary skill in the art, therefore would have been obvious. See, for example, Devoe et al. U.S. Patent Application Publication 20030161091, Figs. 1's for various series connection and parallel connection configurations as needed and as known by a person of ordinary skill in the art.

Referring to **claim 28**, although the reference fails to disclose an annealing process for the capacitive element using an oxygen-containing atmosphere at a temperature of 100 to 900 degree C as claimed, annealing the capacitive element using an oxygen-containing atmosphere at a temperature to form the capacitive structure is a process an artisan would use. See, for example, Katori, U.S. Patent Application Publication 20010021564, paragraphs [0007]-[0013], for such a process. As for the limitation of a temperature of 100 to 900 degree C, selecting such an annealing temperature is within the ability of a person of ordinary skill in the art, therefore would have been obvious.

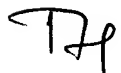
Referring to **claims 29 and 30**, although the reference fails to disclose the utility of the capacitor in an electronic circuit, the reference, however, also does not preclude such usage. Therefore the utilization of the capacitor in an electronic circuit, at the time the invention was made, would have been obvious to one of ordinary skill in the art.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu-Tu Ho whose telephone number is (571) 272-1778. The examiner can normally be reached on 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID NELMS can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu-Tu Ho
May 27, 2005